

SOP No. EM-09		Page 1 of 4
Priority (Emergency) Sampling		
Revision: #3	Replaces: 4/9/02 version	Effective: 2/13/03

1. Purpose and Scope: Priority samples are collected when an incident or complaint occurs that may be related to pesticides applied for APHIS programs. The purpose of priority sampling is to determine the presence and amount of Program pesticides at the site in as short a time as possible. The pesticide residue data combined with the investigational data provide the basis for evaluating whether Program operations were a contributing factor in the situation. If so, operations can be modified to prevent adverse effects on the environment, public health, or private property. The same data can be used to determine whether immediate remedial actions are required. Follow-up sampling may be required to demonstrate the success of any modifications to operational procedures or remediation.

The timeliness of resolving these issues is critical, and it is important that the investigation and sampling begin as soon as possible. Because the Environmental Monitoring Team (EMT) at APHIS Headquarters is responsible for evaluating the residue and investigational data, drawing conclusions, and making recommendations, it is important that they be contacted at (301) 734-7175 as soon as possible following the report of an incident. The EMT can provide guidance on what to sample and what additional information might be needed. If the incident occurs on a weekend or if members of the EMT are unavailable, then this SOP, which provides general guidance, should be implemented immediately.

Most incidents involve pesticide spills or fish kills, less frequently there are complaints of adverse health effects, damage to private property, or terrestrial wildlife die-offs. In all cases you should consider litigation a possibility and carefully document all investigational and sampling activities. Be sure to sample not only the incident site itself, but also the surrounding environment to determine what, if any, Program pesticide might be in the area. These additional samples are critical in determining whether or not the Program could be responsible for causing the incident in question.

2. Supplies Required: Supplies for priority sampling should be requested from the Laboratory Supplies Coordinator at the APHIS Analytical and Natural Products Chemistry Laboratory (ANPCL), Plant Protection and Quarantine, in Gulfport, MS at (228) 822-3106.

3. Sampling Pesticide Spills: Follow instructions in the environmental monitoring plan (EMP) for reporting spills. Sampling of such areas will usually be done only after emergency clean-up measures have been implemented. Immediate sampling may be required to delineate the area of contamination or to determine if the residue exceeds a threshold concentration before final clean-up measures are implemented. Sample each matrix that was likely to have been exposed to the spilled pesticide, following an appropriate SOP if available (e.g. EM-03, *Collecting Water*

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Samples; EM-06, Collecting Soil Samples; EM-07, Collecting Vegetation Samples; EM-24, Collecting Wipe Samples for Residue Analysis).

4. Sampling Fish Kills, Bee Kills, or Other Die-off:

- 4.1 **When investigating a fish kill**, collect samples of each type of dead or dying fish along with samples of the water body (EM-03, *Collecting Water Samples*), surrounding vegetation (EM-07, *Collection of Vegetation Samples*), and sediment (EM-05, *Collecting Sediment Samples*). Do not collect carcasses which are decomposed. Place each fish sample in a 12"x 12" resealable plastic bag (if fish are small, several fish of the same type can be placed in one bag). Seal and label the bag, then immediately chill the sample for transport to a freezer prior to shipment to ANPCL.
- 4.2 **When investigating a bee kill**, be sure to note the approximate number of dead bees in the area. Be aware of any live bees that could become agitated by your presence. Collect a set of dead or dying bees using forceps as outlined in SOP EM-08, *Collection of Insect Samples*. A single sample will consist of several bees, approximately one full handful. These should all be placed in a single resealable plastic bag, labeled, and placed on ice for transport to a freezer prior to shipment to ANPCL. Collect additional environmental samples to determine if pesticides might have deposited near the site of the bee kill. These samples should include surrounding vegetation (EM-07, *Collection of Vegetation Samples*) and wipe samples of flat surfaces (EM-24, *Collecting Wipe Samples for Residue Analysis*).
- 4.3 **If there is a die-off of a different species** (e.g., birds), first contact the EMT at (301) 734-7175. If the EMT is not available, consider the possibility that the death could be due to a disease which could be transmitted to you. Contact a veterinarian before sampling if this is a concern. Otherwise, collect samples of the dead or dying species. Also collect drinking water and food items that might have been exposed to Program pesticides as well as surrounding vegetation or water as appropriate.

5. Sampling for Public Health Concerns: Where human exposure to Program pesticides is a concern, collect samples of the environment in close proximity to where the exposure may have occurred. Sampling that may be appropriate includes: swabbing impervious surfaces (EM-24,

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Collecting Wipe Samples for Residue Analysis); sampling vegetation (EM-07, *Collection of Vegetation Samples*); or drinking water (EM-03, *Collecting Water Samples*).

6. Private Property: When there are complaints of damage to private property from Program pesticide treatments, sample those environmental components that are in close proximity to where the exposure may have occurred. Previous complaints included damage to gardens (with appropriate samples being the damaged vegetation as well as surrounding vegetation) and damage to homes (with appropriate samples being wipes of the surfaces of the house and cuttings of surrounding vegetation).

7. Follow-up Sampling: Whenever Program pesticide treatments are repeated at a site where there was an incident, additional sampling should be conducted. Follow-up sampling should be planned through consultation with the EMT. If airborne drift of Program pesticides is a possible concern, then dye card and roto-rod samples might be collected before and after treatments. If run-off is a concern, then run-off water and sediment might be collected following subsequent treatments. Spill sites might be resampled to demonstrate that any clean-up was effective or to show the breakdown of the pesticide over time.

8. Documentation: Every incident or complaint carries with it the potential for litigation. For this reason it is essential that detailed records be kept of all conversations, observations, and samples. An investigation into the cause of the incident must be undertaken which provides as much depth and detail as possible. If other agencies become involved in the investigation (e.g. EPA, USFWS, state health or environmental departments, county public health, private physicians, etc.), then arrange to obtain a copy of their report/diagnosis to be forwarded to the EMT.

When investigating a **pesticide spill**, record the location, topography, ground cover, and the location of any sensitive sites in the vicinity. Take note of potential runoff channels leading away from the spill site. A sketch showing the relation between the spill site, sample collection sites, and any sensitive sites is required. This should be supplemented by a GPS map, topographical map, or aerial photo of the area, annotated to indicate the sample locations, the spill location, and other information as needed.

When investigating a **fish kill**, be sure to measure or estimate the water body size (surface area or dimensions), depth, surface velocity (if flowing), temperature, pH, dissolved oxygen, and turbidity (cloudy, clear, muddy, etc). Describe the number, sizes, and species of dead or dying fish and when signs of stress first appeared. Describe the flora and fauna in or near the water

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body that appear to be unaffected, especially if healthy fish are found in the water. Record where and when Program pesticide treatments were made in the vicinity. At the time of those treatments, was the wind blowing towards the water body? Has there been any rainfall in the time between Program treatments and the fish kill? Had there been any extreme weather? What other agricultural activities occur nearby? Could there be toxic material being introduced to the water body by some industry? A annotated sketch, map, aerial photograph, ground level photographs, and/or a video of the scene are required supplemental information.

When investigating **public health** concerns, provide as detailed an explanation as possible as to how exposure to Program pesticides might have occurred. Where and when were Program pesticide treatments being conducted in the vicinity of the reported exposure? If the applicator was outfitted with a global positioning system, provide that information. What was the wind speed and direction when the exposure was supposed to have occurred? Were they blowing from the treatment site towards the individual(s) exposed? An annotated sketch, map, aerial photograph, ground level photographs, and/or a video of the scene are required supplemental information. If a medical exam was conducted, a copy of the physicians report will be helpful.

When investigating damage to **private property**, provide as detailed an explanation as possible of how exposure to Program pesticides might have occurred. Where and when were Program pesticide treatments being conducted in the vicinity of the reported exposure? If the applicator was outfitted with a global positioning system, provide that information. What was the wind speed and direction when the damage was supposed to have occurred? Were they blowing from the treatment site towards the area(s) exposed? An annotated sketch, map, aerial photograph, ground level photographs, and/or a video of the scene are required supplemental information.

Complete an APHIS Form 2060 for each sample collected. Retain the pink copy of the form for your records and distribute the remaining copies as specified in the EMP.

9. Packaging and Shipping Samples: Package and ship the priority samples as described in SOP EM-17, *Packaging and Shipping of Samples*, except for highly contaminated samples from a spill site. These samples should be packaged separately in corrugated cardboard boxes without dry ice. Be sure these samples are completely sealed and are clearly labeled as spill samples. Prior to shipping any priority samples, call the Analytical and Natural Products Chemistry Laboratory (ANPCL) in Gulfport, MS so that they may prepare equipment for the prompt processing of the samples.